



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,243	04/30/2001	David B. Bowler	2736.2009-000	2859

43471 7590 06/17/2004

GENERAL INSTRUMENT CORPORATION DBA THE BROADBAND
COMMUNICATIONS SECTOR OF MOTOROLA, INC.
101 TOURNAMENT DRIVE
HORSHAM, PA 19044

EXAMINER

SINGH, DALZID E

ART UNIT	PAPER NUMBER
----------	--------------

2633

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/845,243

Applicant(s)

BOWLER ET AL.

Examiner

Dalzid Singh

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2 and 4-7 is/are allowed.
- 6) ☒ Claim(s) 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonebright et al (US Patent No. 5,828,476).

Regarding claim 8, Bonebright et al disclose method of receiving an optical signal, as shown in Fig. 1, comprising:

converting an optical signal including a plurality of packets transmitted in burst mode to an electrical signal (in col. 3, lines 24-33, Bonebright et al disclose system capable of transmitting burst mode suitable for MS 1773 protocol, which is a packet signal and in col. 3, lines 50-51 and col. 4, lines 38-40, Bonebright et al teach photodiode (D1), which convert optical signal into electrical signal);

AC-coupling the electrical signal through a capacitor to provide an AC-coupled signal (in col. 3, lines 51-61 and col. 8, lines 59-64, Bonebright et al teach AC coupler to couple the electrical signal through a capacitor);

outputting a voltage signal corresponding to the AC-coupled signal (since the signal is input into AC coupler, therefore there must be a voltage signal being output corresponding to the input signal); and

outputting a digital signal corresponding to the voltage signal, the digital signal holding a particular state for each undriven edge of the voltage signal and changing state for each voltage signal (in col. 9, lines 16-59, Bonebright et al teach that the signal from AC coupler is input into post amplifier/equalizer in which the signal is digitized and being used to change output state of the detector. As shown in Fig. 6, there are pluralities of buffers to hold a particular state of the signal. The output state of the detector is measured in voltage, by changing the output state, the voltage is being changed).

Bonebright et al differ from the claimed invention in that Bonebright et al do not specifically disclose that the voltage signal having a driven edge time constant corresponding to each driven edge of the AC coupled signal and an undriven edge time constant extended and longer than the driven edge time constant corresponding to each undriven edge of the AC-coupled signal. It is well known that pulse signal have driven edge and undriven edge (for example, transition between 0 and 1 can be considered as driven edge and transition between 1 and 0 can be considered as undriven edge). It is also well known that for the signal to be amplified the signal has to be within an amplifier's operating band or unsaturation region. Outside this operating band, amplifier gain decreases, this is known as saturation region. If pulse of signal comprising of driven and undriven edge is amplified by an amplifier, the signal level will increase as long as the frequency of the pulse is within the operating band of the amplifier; if the pulse frequency falls outside of the operating band then signal becomes distorted (for example, as the pulse frequency increases beyond amplifier's operating band, the

Art Unit: 2633

signal will become extended and longer). Therefore, it would have been obvious to consider pulse signal of having driven edge or undriven edge in which the signal will become distorted as the frequency increases or decreases outside the saturation region of the amplifier.

Regarding claim 9, Bonebright et al disclose optical transmission system as discussed above and differ from the claimed invention in that Bonebright et al do not teach that the undriven edge time constant is shorter than a guard time between packets. However, in col. 3, lines 29-30, Bonebright et al teach operation in mega bits, therefore it would have been obvious that the undriven time constant is shorter than a guard time between packets in order to transmit greater bandwidth within a certain allocated time slot.

Regarding claim 10, Bonebright et al disclose optical transmission system as discussed above and differ from the claimed invention in that Bonebright et al do not teach that the packets have a wide dynamic range of power levels. However, it is well known that as signal travel in transmission medium, signal quality degrades. Since communication system multiplexed plurality of channels, the power level of each channel will vary as it travel on the transmission line. Therefore it is well known that the packets have a wide dynamic range of power levels.

Regarding claim 11, Bonebright et al disclose optical transmission system as discussed above and differ from the claimed invention in that Bonebright et al do not teach that the range of power level levels is in the range -32dBm to -7dBm. However, Bonebright et al clearly suggest that the system have wide dynamic range (see col. 1,

lines 23-24). Based on this teaching, it would have been obvious to an artisan of ordinary skill at the time of the invention to have the power level within the predetermined range such as -32dBm to -7dBm. Furthermore, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App D.C. 217, 99 F.2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App D.C. 324, 135 F.2d 11, 57 USPQ 136. In addition, discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antonie*, 559 F.2d 239, 618, 195 USPQ 6 (CCPA 1977); *In re Aller*, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). See also *In re Aller*, 105 USPQ 233 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to set the power level to an optimum or workable value or range by routine experimentation.

Regarding claim 12, Bonebright et al disclose optical transmission system as discussed above and differ from the claimed invention in that Bonebright et al do not teach that the optical signal is received from a remote terminal in a Passive Optical Network. However, in col. 1, lines 5-7, Bonebright et al teach that the system is used in communication system. As shown in Fig. 1, Bonebright et al show optical signal is received at the input (D1). Therefore, base on these teachings, it would have been obvious that the communication system of Bonebright et al communicates with optical network such as Passive optical Network (PON).

Allowable Subject Matter

3. Claims 1, 2 and 4-7 allowed.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 6 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ota et al (US Patent No. 5,025,456) is cited to show burst mode digital data receiver.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is 703-306-5619. The examiner can normally be reached on Mon-Fri 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Application/Control Number: 09/845,243
Art Unit: 2633

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS

June 10, 2004

David Singh